

The Project Framework Matrix

Project Number:	Project Title: Isotope Characterization of Geothermal Prospects	Last Update: 26-Sep-00
Project Officer:	Technical Officer :	
Main Counterpart: R.L. Ruya	Organisation: Boruto Ministry of Energy and Mines	
Other National Counterparts:		

	Project Design Elements	Verifiable Indicators	Means of Verification	Important Assumptions
Development/ Overall Objective	Provide electrical power for rural electrification and industrial development.	Commercial-scale geothermal power plants licensed, constructed and in operation.	License agreements signed, facilities built, power produced.	<ul style="list-style-type: none"> Commercially viable geothermal resources identified; Transmission and distribution facilities constructed.
Specific Objective	Perform preliminary assessment of the geothermal potential in the Mingora geothermal field to support licensing and development of the prospect.	<ul style="list-style-type: none"> Engineering and economic analysis of reservoir completed; Lease sale implemented with one or more responsive bids for development rights. 	<ul style="list-style-type: none"> Reservoir analysis report; Bid package prepared and bids submitted. 	Mingora reservoir is economically viable and appropriate bidders are identified.
Project Outputs	<ul style="list-style-type: none"> Data on reservoir recharge, mixing and circulation; Data on deep geothermal temperatures; Estimates of optimal production rates; Recommended locations for additional production wells. 	Project reports integrating geophysical, geological, and isotopic data prepared for review by IAEA and Ministry.	Expert review of reports.	Deep wells encounter suitable geothermal reservoir; radio-tracer tests completed with adequate recovery of tracer.
Activities	<ul style="list-style-type: none"> Geological and geophysical investigation; Production well siting and drilling; Well testing and sampling; Isotope analysis of geothermal fluids and spring waters; Tracer testing of geothermal wells; 	<ul style="list-style-type: none"> Work progressing according to project plans; Project milestones achieved; Numbers and types of samples collected and analyzed. 	Progress meetings, project reports, site visits by experts and Technical Officer.	<ul style="list-style-type: none"> Equipment and other inputs delivered as planned; Geothermal reservoir is encountered no deeper than 900 meters.

Project Design Elements**Verifiable Indicators****Means of Verification****Important Assumptions**

- Evaluation and interpretation of project data.

**IAEA + CP
Inputs****IAEA:**

- Expert services for well siting, isotope sampling, tracer tests, and data interpretation.
- Analytical services for environmental isotopes
- Training for project personnel in field procedures and geothermal isotope data interpretation;
- Equipment for high pressure/high temperature sampling.

CP:

- \$15 million (US) to support drilling and other project activities;
- Technical and engineering support;
- Facilities and personnel.

- Expert visits completed; equipment purchased, delivered, and in use; analytical services provided according to schedule; training missions completed.
- Ministry budget

Procurement records, expert reports, training progress reports

Isotope analyses completed in a timely fashion.